

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D (in.)	Dm (mm)		ST&C		LT&C	
					ft-lb	N • m	ft-lb	N • m
4.500	9.50	4.500	114.30	H40	770	1040	--	--
4.500	9.50	4.500	114.30	J55	1010	1380	--	--
4.500	10.50	4.500	114.30	J55	1320	1790	--	--
4.500	11.60	4.500	114.30	J55	1540	2090	1620	2200
4.500	9.50	4.500	114.30	K55	1120	1520	--	--
4.500	10.50	4.500	114.30	K55	1460	1980	--	--
4.500	11.60	4.500	114.30	K55	1700	2310	1800	2430
4.500	9.50	4.500	114.30	M65	1180	1600	--	--
4.500	10.50	4.500	114.30	M65	1540	2090	--	--
4.500	11.60	4.500	114.30	M65	--	--	1880	2550
4.500	13.50	4.500	114.30	M65	--	--	2280	3090
4.500	11.60	4.500	114.30	L80	--	--	2230	3030
4.500	13.50	4.500	114.30	L80	--	--	2710	3670
4.500	11.60	4.500	114.30	N80	--	--	2280	3090
4.500	13.50	4.500	114.30	N80	--	--	2760	3740
4.500	11.60	4.500	114.30	C90	--	--	2450	3320
4.500	13.50	4.500	114.30	C90	--	--	2970	4030
4.500	11.60	4.500	114.30	C95	--	--	2580	3500
4.500	13.50	4.500	114.30	C95	--	--	3130	4240
4.500	11.60	4.500	114.30	T95	--	--	2580	3500
4.500	13.50	4.500	114.30	T95	--	--	3130	4240
4.500	11.60	4.500	114.30	P110	--	--	3020	4100
4.500	13.50	4.500	114.30	P110	--	--	3660	4960
4.500	15.10	4.500	114.30	P110	--	--	4400	5960
4.500	15.10	4.500	114.30	Q125	--	--	4910	6650
5.000	11.50	5.000	127.00	J55	1330	1810	--	--
5.000	13.00	5.000	127.00	J55	1690	2290	1820	2470
5.000	15.00	5.000	127.00	J55	2070	2800	2230	3020
5.000	11.50	5.000	127.00	K55	1470	1990	--	--
5.000	13.00	5.000	127.00	K55	1860	2520	2010	2730
5.000	15.00	5.000	127.00	K55	2280	3090	2460	3340

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D (in.)	Dm (mm)		ST&C		LT&C	
					ft-lb	N • m	ft-lb	N • m
5.000	11.50	5.000	127.00	M65	1550	2100	--	--
5.000	13.00	5.000	127.00	M65	1960	2660	2120	2870
5.000	15.00	5.000	127.00	M65	--	--	2590	3520
5.000	18.00	5.000	127.00	M65	--	--	3310	4480
5.000	21.40	5.000	127.00	M65	--	--	4090	5550
5.000	15.00	5.000	127.00	L80	--	--	3080	4170
5.000	18.00	5.000	127.00	L80	--	--	3930	5320
5.000	21.40	5.000	127.00	L80	--	--	4860	6590
5.000	23.20	5.000	127.00	L80	--	--	5350	7260
5.000	24.10	5.000	127.00	L80	--	--	5610	7610
5.000	15.00	5.000	127.00	N80	--	--	3140	4250
5.000	18.00	5.000	127.00	N80	--	--	4000	5420
5.000	21.40	5.000	127.00	N80	--	--	4950	6710
5.000	23.20	5.000	127.00	N80	--	--	5450	7400
5.000	24.10	5.000	127.00	N80	--	--	5720	7760
5.000	15.00	5.000	127.00	C90	--	--	3380	4590
5.000	18.00	5.000	127.00	C90	--	--	4310	5850
5.000	21.40	5.000	127.00	C90	--	--	5340	7240
5.000	23.20	5.000	127.00	C90	--	--	5880	7980
5.000	24.10	5.000	127.00	C90	--	--	6170	8370
5.000	15.00	5.000	127.00	C95	--	--	3560	4830
5.000	18.00	5.000	127.00	C95	--	--	4550	6160
5.000	21.40	5.000	127.00	C95	--	--	5620	7630
5.000	23.20	5.000	127.00	C95	--	--	6200	8400
5.000	24.10	5.000	127.00	C95	--	--	6500	8810
5.000	15.00	5.000	127.00	T95	--	--	3560	4830
5.000	18.00	5.000	127.00	T95	--	--	4550	6160
5.000	21.40	5.000	127.00	T95	--	--	5620	7630
5.000	23.20	5.000	127.00	T95	--	--	6200	8400
5.000	24.10	5.000	127.00	T95	--	--	6500	8810
5.000	15.00	5.000	127.00	P110	--	--	4170	5650
5.000	18.00	5.000	127.00	P110	--	--	5310	7210
5.000	21.40	5.000	127.00	P110	--	--	6580	8920
5.000	23.20	5.000	127.00	P110	--	--	7250	9830
5.000	24.10	5.000	127.00	P110	--	--	7600	10,310
5.000	18.00	5.000	127.00	Q125	--	--	5930	8050
5.000	21.40	5.000	127.00	Q125	--	--	7340	9960
5.000	23.20	5.000	127.00	Q125	--	--	8090	10,970
5.000	24.10	5.000	127.00	Q125	--	--	8490	11,510

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D	Dm		ST&C		LT&C	
Size		(in.)	(mm)		ft-lb	N • m	ft-lb	N • m
5.500	14.00	5.500	139.70	H40	1300	1760	--	--
5.500	14.00	5.500	139.70	J55	1720	2330	--	--
5.500	15.50	5.500	139.70	J55	2020	2730	2170	2940
5.500	17.00	5.500	139.70	J55	2290	3110	2470	3340
5.500	14.00	5.500	139.70	K55	1890	2560	--	--
5.500	15.50	5.500	139.70	K55	2220	3000	2390	3240
5.500	17.00	5.500	139.70	K55	2520	3410	2720	3680
5.500	14.00	5.500	139.70	M65	2000	2710	--	--
5.500	15.50	5.500	139.70	M65	2350	3180	2530	3430
5.500	17.00	5.500	139.70	M65	--	--	2870	3890
5.500	20.00	5.500	139.70	M65	--	--	3530	4790
5.500	23.00	5.500	139.70	M65	--	--	4150	5620
5.500	17.00	5.500	139.70	L80	--	--	3410	4630
5.500	20.00	5.500	139.70	L80	--	--	4200	5700
5.500	23.00	5.500	139.70	L80	--	--	4930	6690
5.500	17.00	5.500	139.70	N80	--	--	3480	4710
5.500	20.00	5.500	139.70	N80	--	--	4280	5800
5.500	23.00	5.500	139.70	N80	--	--	5020	6810
5.500	17.00	5.500	139.70	C90	--	--	3750	5090
5.500	20.00	5.500	139.70	C90	--	--	4620	6270
5.500	23.00	5.500	139.70	C90	--	--	5430	7360
5.500	17.00	5.500	139.70	C95	--	--	3960	5360
5.500	20.00	5.500	139.70	C95	--	--	4870	6600
5.500	23.00	5.500	139.70	C95	--	--	5720	7750
5.500	17.00	5.500	139.70	T95	--	--	3960	5360
5.500	20.00	5.500	139.70	T95	--	--	4870	6600
5.500	23.00	5.500	139.70	T95	--	--	5720	7750
5.500	17.00	5.500	139.70	P110	--	--	4620	6270
5.500	20.00	5.500	139.70	P110	--	--	5690	7720
5.500	23.00	5.500	139.70	P110	--	--	6680	9060
5.500	23.00	5.500	139.70	Q125	--	--	7470	10120
6.625	20.00	6.625	168.28	H40	1840	2490	--	--
6.625	20.00	6.625	168.28	J55	2450	3320	2660	3600
6.625	24.00	6.625	168.28	J55	3140	4250	3400	4620

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D	Dm		ST&C		LT&C	
		(in.)	(mm)		ft-lb	N • m	ft-lb	N • m
6.625	20.00	6.625	168.28	K55	2670	3620	2900	3940
6.625	24.00	6.625	168.28	K55	3420	4640	3720	5050
6.625	20.00	6.625	168.28	M65	2850	3870	3090	4190
6.625	24.00	6.625	168.28	M65	--	--	3960	5380
6.625	28.00	6.625	168.28	M65	--	--	4830	6550
6.625	24.00	6.625	168.28	L80	--	--	4730	6410
6.625	28.00	6.625	168.28	L80	--	--	5760	7810
6.625	32.00	6.625	168.28	L80	--	--	6660	9030
6.625	24.00	6.625	168.28	N80	--	--	4810	6520
6.625	28.00	6.625	168.28	N80	--	--	5860	7940
6.625	32.00	6.625	168.28	N80	--	--	6780	9190
6.625	24.00	6.625	168.28	C90	--	--	5210	7060
6.625	28.00	6.625	168.28	C90	--	--	6350	8610
6.625	32.00	6.625	168.28	C90	--	--	7340	9950
6.625	24.00	6.625	168.28	C95	--	--	5490	7440
6.625	28.00	6.625	168.28	C95	--	--	6690	9070
6.625	32.00	6.625	168.28	C95	--	--	7740	10,490
6.625	24.00	6.625	168.28	T95	--	--	5490	7440
6.625	28.00	6.625	168.28	T95	--	--	6690	9070
6.625	32.00	6.625	168.28	T95	--	--	7740	10,490
6.625	24.00	6.625	168.28	P110	--	--	6410	8690
6.625	28.00	6.625	168.28	P110	--	--	7810	10,590
6.625	32.00	6.625	168.28	P110	--	--	9040	12,250
6.625	32.00	6.625	168.28	Q125	--	--	10,110	13,710
7.000	17.00	7.000	177.80	H40	1220	1650	--	--
7.000	20.00	7.000	177.80	H40	1760	2380	--	--
7.000	20.00	7.000	177.80	J55	2340	3170	--	--
7.000	23.00	7.000	177.80	J55	2840	3850	3130	4240
7.000	26.00	7.000	177.80	J55	3340	4530	3670	4980
7.000	20.00	7.000	177.80	K55	2540	3450	--	--
7.000	23.00	7.000	177.80	K55	3090	4190	3410	4630
7.000	26.00	7.000	177.80	K55	3640	4930	4010	5440
7.000	20.00	7.000	177.80	M65	2730	3690	--	--
7.000	23.00	7.000	177.80	M65	--	--	3640	4940
7.000	26.00	7.000	177.80	M65	--	--	4280	5800

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation Size	Weight	Outside Diameter		Grade	Torque			
		D (in.)	Dm (mm)		ST&C		LT&C	
					ft-lb	N • m	ft-lb	N • m
7.000	29.00	7.000	177.80	M65	--	--	4920	6680
7.000	32.00	7.000	177.80	M65	--	--	5540	7520
7.000	23.00	7.000	177.80	L80	--	--	4350	5890
7.000	26.00	7.000	177.80	L80	--	--	5110	6930
7.000	29.00	7.000	177.80	L80	--	--	5870	7960
7.000	32.00	7.000	177.80	L80	--	--	6610	8970
7.000	35.00	7.000	177.80	L80	--	--	7340	9950
7.000	38.00	7.000	177.80	L80	--	--	8010	10,860
7.000	23.00	7.000	177.80	N80	--	--	4420	5990
7.000	26.00	7.000	177.80	N80	--	--	5190	7040
7.000	29.00	7.000	177.80	N80	--	--	5970	8100
7.000	32.00	7.000	177.80	N80	--	--	6720	9110
7.000	35.00	7.000	177.80	N80	--	--	7460	10,120
7.000	38.00	7.000	177.80	N80	--	--	8140	11,040
7.000	23.00	7.000	177.80	C90	--	--	4790	6500
7.000	26.00	7.000	177.80	C90	--	--	5630	7630
7.000	29.00	7.000	177.80	C90	--	--	6480	8780
7.000	32.00	7.000	177.80	C90	--	--	7290	9890
7.000	35.00	7.000	177.80	C90	--	--	8090	10,970
7.000	38.00	7.000	177.80	C90	--	--	8830	11,970
7.000	23.00	7.000	177.80	C95	--	--	5050	6850
7.000	26.00	7.000	177.80	C95	--	--	5930	8050
7.000	29.00	7.000	177.80	C95	--	--	6830	9250
7.000	32.00	7.000	177.80	C95	--	--	7680	10,420
7.000	35.00	7.000	177.80	C95	--	--	8530	11,560
7.000	38.00	7.000	177.80	C95	--	--	9310	12,620
7.000	23.00	7.000	177.80	T95	--	--	5050	6850
7.000	26.00	7.000	177.80	T95	--	--	5930	8050
7.000	29.00	7.000	177.80	T95	--	--	6830	9250
7.000	32.00	7.000	177.80	T95	--	--	7680	10,420
7.000	35.00	7.000	177.80	T95	--	--	8530	11,560
7.000	38.00	7.000	177.80	T95	--	--	9310	12,620
7.000	26.00	7.000	177.80	P110	--	--	6930	9390
7.000	29.00	7.000	177.80	P110	--	--	7970	10,800
7.000	32.00	7.000	177.80	P110	--	--	8970	12,160
7.000	35.00	7.000	177.80	P110	--	--	9960	13,500
7.000	38.00	7.000	177.80	P110	--	--	10,870	14,730
7.000	35.00	7.000	177.80	Q125	--	--	11,150	15,110
7.000	38.00	7.000	177.80	Q125	--	--	12,160	16,490

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D (in.)	Dm (mm)		ST&C		LT&C	
					ft-lb	N • m	ft-lb	N • m
Size								
7.625	24.00	7.625	193.68	H40	2120	2870	--	--
7.625	26.40	7.625	193.68	J55	3150	4270	3460	4690
7.625	26.40	7.625	193.68	K55	3420	4640	3770	5110
7.625	26.40	7.625	193.68	M65	3680	4980	4040	5470
7.625	29.70	7.625	193.68	M65	--	--	4740	6430
7.625	33.70	7.625	193.68	M65	--	--	5560	7540
7.625	26.40	7.625	193.68	L80	--	--	4820	6530
7.625	29.70	7.625	193.68	L80	--	--	5670	7680
7.625	33.70	7.625	193.68	L80	--	--	6640	9000
7.625	39.00	7.625	193.68	L80	--	--	7860	10,650
7.625	42.80	7.625	193.68	L80	--	--	8910	12,090
7.625	45.30	7.625	193.68	L80	--	--	9470	12,840
7.625	47.10	7.625	193.68	L80	--	--	9970	13,520
7.625	26.40	7.625	193.68	N80	--	--	4900	6640
7.625	29.70	7.625	193.68	N80	--	--	5750	7800
7.625	33.70	7.625	193.68	N80	--	--	6740	9140
7.625	39.00	7.625	193.68	N80	--	--	7980	10,820
7.625	42.80	7.625	193.68	N80	--	--	9060	12,280
7.625	45.30	7.625	193.68	N80	--	--	9620	13,040
7.625	47.10	7.625	193.68	N80	--	--	10,130	13,730
7.625	26.40	7.625	193.68	C90	--	--	5320	7210
7.625	29.70	7.625	193.68	C90	--	--	6250	8470
7.625	33.70	7.625	193.68	C90	--	--	7330	9930
7.625	39.00	7.625	193.68	C90	--	--	8670	11,750
7.625	42.80	7.625	193.68	C90	--	--	9840	13,330
7.625	45.30	7.625	193.68	C90	--	--	10,450	14,160
7.625	47.10	7.625	193.68	C90	--	--	11,000	14,910
7.625	26.40	7.625	193.68	C95	--	--	5600	7600
7.625	29.70	7.625	193.68	C95	--	--	6590	8930
7.625	33.70	7.625	193.68	C95	--	--	7720	10,470
7.625	39.00	7.625	193.68	C95	--	--	9140	12,390
7.625	42.80	7.625	193.68	C95	--	--	10,370	14,050
7.625	45.30	7.625	193.68	C95	--	--	11,010	14,930
7.625	47.10	7.625	193.68	C95	--	--	11,590	15,720
7.625	26.40	7.625	193.68	T95	--	--	5600	7600
7.625	29.70	7.625	193.68	T95	--	--	6590	8930
7.625	33.70	7.625	193.68	T95	--	--	7720	10,470
7.625	39.00	7.625	193.68	T95	--	--	9140	12,390
7.625	42.80	7.625	193.68	T95	--	--	10,370	14,050

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D (in.)	Dm (mm)		ST&C		LT&C	
					ft-lb	N • m	ft-lb	N • m
7.625	45.30	7.625	193.68	T95	--	--	11,010	14,930
7.625	47.10	7.625	193.68	T95	--	--	11,590	15,720
7.625	29.70	7.625	193.68	P110	--	--	7690	10,420
7.625	33.70	7.625	193.68	P110	--	--	9010	12,220
7.625	39.00	7.625	193.68	P110	--	--	10,660	14,460
7.625	42.80	7.625	193.68	P110	--	--	12,100	16,440
7.625	45.30	7.625	193.68	P110	--	--	12,850	17,420
7.625	47.10	7.625	193.68	P110	--	--	13,530	18,340
7.625	39.00	7.625	193.68	Q125	--	--	11,940	16,190
7.625	42.80	7.625	193.68	Q125	--	--	13,550	18,370
7.625	45.30	7.625	193.68	Q125	--	--	14,390	19,520
7.625	47.10	7.625	193.68	Q125	--	--	15,150	20,540
8.625	28.00	8.625	219.08	H40	2330	3150	--	--
8.625	32.00	8.625	219.08	H40	2790	3780	--	--
8.625	24.00	8.625	219.08	J55	2440	3310	--	--
8.625	32.00	8.625	219.08	J55	3720	5050	4170	5660
8.625	36.00	8.625	219.08	J55	4340	5880	4860	6590
8.625	24.00	8.625	219.08	K55	2630	3570	--	--
8.625	32.00	8.625	219.08	K55	4020	5460	4520	6130
8.625	36.00	8.625	219.08	K55	4680	6350	5260	7140
8.625	24.00	8.625	219.08	M65	2850	3860	--	--
8.625	28.00	8.625	219.08	M65	3620	4910	--	--
8.625	32.00	8.625	219.08	M65	4350	5890	4870	6600
8.625	36.00	8.625	219.08	M65	5060	6860	5670	7690
8.625	40.00	8.625	219.08	M65	--	--	6490	8800
8.625	36.00	8.625	219.08	L80	--	--	6780	9190
8.625	40.00	8.625	219.08	L80	--	--	7760	10,530
8.625	44.00	8.625	219.08	L80	--	--	8740	11,840
8.625	49.00	8.625	219.08	L80	--	--	9830	13,320
8.625	36.00	8.625	219.08	N80	--	--	6880	9330
8.625	40.00	8.625	219.08	N80	--	--	7880	10,680
8.625	44.00	8.625	219.08	N80	--	--	8870	12,020
8.625	49.00	8.625	219.08	N80	--	--	9970	13,520
8.625	36.00	8.625	219.08	C90	--	--	7490	10,150
8.625	40.00	8.625	219.08	C90	--	--	8580	11,630
8.625	44.00	8.625	219.08	C90	--	--	9650	13,080
8.625	49.00	8.625	219.08	C90	--	--	10,850	14,710

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D (in.)	Dm (mm)		ST&C		LT&C	
					ft-lb	N • m	ft-lb	N • m
8.625	36.00	8.625	219.08	C95	--	--	7890	10,700
8.625	40.00	8.625	219.08	C95	--	--	9040	12,260
8.625	44.00	8.625	219.08	C95	--	--	10,170	13,790
8.625	49.00	8.625	219.08	C95	--	--	11,440	15,510
8.625	36.00	8.625	219.08	T95	--	--	7890	10,700
8.625	40.00	8.625	219.08	T95	--	--	9040	12,260
8.625	44.00	8.625	219.08	T95	--	--	10,170	13,790
8.625	49.00	8.625	219.08	T95	--	--	11,440	15,510
8.625	40.00	8.625	219.08	P110	--	--	10,550	14,300
8.625	44.00	8.625	219.08	P110	--	--	11,860	16,090
8.625	49.00	8.625	219.08	P110	--	--	13,350	18,100
8.625	49.00	8.625	219.08	Q125	--	--	14,960	20,280
9.625	32.30	9.625	244.48	H40	2540	3440	--	--
9.625	36.00	9.625	244.48	H40	2940	3990	--	--
9.625	36.00	9.625	244.48	J55	3940	5340	4530	6140
9.625	40.00	9.625	244.48	J55	4520	6120	5200	7050
9.625	36.00	9.625	244.48	K55	4230	5740	4890	6630
9.625	40.00	9.625	244.48	K55	4860	6590	5610	7610
9.625	36.00	9.625	244.48	M65	4600	6230	5290	7170
9.625	40.00	9.625	244.48	M65	5280	7150	6070	8230
9.625	43.50	9.625	244.48	M65	--	--	6790	9210
9.625	47.00	9.625	244.48	M65	--	--	7450	10100
9.625	40.00	9.625	244.48	L80	--	--	7270	9860
9.625	43.50	9.625	244.48	L80	--	--	8130	11,030
9.625	47.00	9.625	244.48	L80	--	--	8930	12,100
9.625	53.50	9.625	244.48	L80	--	--	10,470	14,190
9.625	58.40	9.625	244.48	L80	--	--	11,510	15,600
9.625	40.00	9.625	244.48	N80	--	--	7370	10,000
9.625	43.50	9.625	244.48	N80	--	--	8250	11,190
9.625	47.00	9.625	244.48	N80	--	--	9050	12,270
9.625	53.50	9.625	244.48	N80	--	--	10,620	14,390
9.625	58.40	9.625	244.48	N80	--	--	11,670	15,820
9.625	40.00	9.625	244.48	C90	--	--	8040	10,900
9.625	43.50	9.625	244.48	C90	--	--	8990	12,190
9.625	47.00	9.625	244.48	C90	--	--	9870	13,380
9.625	53.50	9.625	244.48	C90	--	--	11,570	15,690
9.625	58.40	9.625	244.48	C90	--	--	12,720	17,250

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D (in.)	Dm (mm)		ST&C		LT&C	
					ft-lb	N • m	ft-lb	N • m
Size								
9.625	40.00	9.625	244.48	C95	--	--	8470	11,490
9.625	43.50	9.625	244.48	C95	--	--	9480	12,850
9.625	47.00	9.625	244.48	C95	--	--	10,400	14,100
9.625	53.50	9.625	244.48	C95	--	--	12,200	16,540
9.625	58.40	9.625	244.48	C95	--	--	13,410	18,180
9.625	40.00	9.625	244.48	T95	--	--	8470	11,490
9.625	43.50	9.625	244.48	T95	--	--	9480	12,850
9.625	47.00	9.625	244.48	T95	--	--	10,400	14,100
9.625	53.50	9.625	244.48	T95	--	--	12,200	16,540
9.625	58.40	9.625	244.48	T95	--	--	13,410	18,180
9.625	43.50	9.625	244.48	P110	--	--	11,050	14,980
9.625	47.00	9.625	244.48	P110	--	--	12,130	16,440
9.625	53.50	9.625	244.48	P110	--	--	14,220	19,280
9.625	58.40	9.625	244.48	P110	--	--	15,630	21,200
9.625	47.00	9.625	244.48	Q125	--	--	13,600	18,440
9.625	53.50	9.625	244.48	Q125	--	--	15,950	21,630
9.625	58.40	9.625	244.48	Q125	--	--	17,540	23,770
10.750	32.75	10.750	273.05	H40	2050	2790	--	--
10.750	40.50	10.750	273.05	H40	3140	4250	--	--
10.750	40.50	10.750	273.05	J55	4200	5700	--	--
10.750	45.50	10.750	273.05	J55	4930	6680	--	--
10.750	51.00	10.750	273.05	J55	5650	7660	--	--
10.750	40.50	10.750	273.05	K55	4500	6100	--	--
10.750	45.50	10.750	273.05	K55	5280	7160	--	--
10.750	51.00	10.750	273.05	K55	6060	8210	--	--
10.750	40.50	10.750	273.05	M65	4910	6660	--	--
10.750	45.50	10.750	273.05	M65	5760	7810	--	--
10.750	51.00	10.750	273.05	M65	6610	8960	--	--
10.750	55.50	10.750	273.05	M65	6610	8960	--	--
10.750	51.00	10.750	273.05	L80	7940	10760	--	--
10.750	55.50	10.750	273.05	L80	8840	11990	--	--
10.750	51.00	10.750	273.05	N80	8040	10900	--	--
10.750	55.50	10.750	273.05	N80	8950	12140	--	--
10.750	51.00	10.750	273.05	C90	8790	11920	--	--
10.750	55.50	10.750	273.05	C90	9790	13270	--	--
10.750	60.70	10.750	273.05	C90	10890	14770	--	--
10.750	65.70	10.750	273.05	C90	11980	16240	--	--

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D	Dm		ST&C		LT&C	
		(in.)	(mm)		ft-lb	N • m	ft-lb	N • m
10.750	51.00	10.750	273.05	C95	9270	12560	--	--
10.750	55.50	10.750	273.05	C95	10320	13990	--	--
10.750	51.00	10.750	273.05	T95	9270	12560	--	--
10.750	55.50	10.750	273.05	T95	10320	13990	--	--
10.750	60.70	10.750	273.05	T95	11480	15570	--	--
10.750	65.70	10.750	273.05	T95	12630	17130	--	--
10.750	51.00	10.750	273.05	P110	10790	14630	--	--
10.750	55.50	10.750	273.05	P110	12020	16300	--	--
10.750	60.70	10.750	273.05	P110	13370	18130	--	--
10.750	65.70	10.750	273.05	P110	14710	19950	--	--
10.750	60.70	10.750	273.05	Q125	15020	20360	--	--
10.750	65.70	10.750	273.05	Q125	16520	22400	--	--
11.750	42.00	11.750	298.45	H40	3070	4170	--	--
11.750	47.00	11.750	298.45	J55	4770	6460	--	--
11.750	54.00	11.750	298.45	J55	5680	7700	--	--
11.750	60.00	11.750	298.45	J55	6490	8800	--	--
11.750	47.00	11.750	298.45	K55	5090	6900	--	--
11.750	54.00	11.750	298.45	K55	6060	8220	--	--
11.750	60.00	11.750	298.45	K55	6930	9400	--	--
11.750	47.00	11.750	298.45	M65	5570	7560	--	--
11.750	54.00	11.750	298.45	M65	6640	9000	--	--
11.750	60.00	11.750	298.45	M65	7590	10290	--	--
11.750	60.00	11.750	298.45	L80	9130	12370	--	--
11.750	60.00	11.750	298.45	N80	9240	12520	--	--
11.750	60.00	11.750	298.45	C90	10110	13710	--	--
11.750	60.00	11.750	298.45	T95	10660	14460	--	--
11.750	60.00	11.750	298.45	C95	10660	14460	--	--
11.750	60.00	11.750	298.45	P110	12420	16830	--	--
11.750	60.00	11.750	298.45	Q125	13950	18920	--	--
13.375	48.00	13.375	339.73	H40	3220	4370	--	--

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Designation	Weight	Outside Diameter		Grade	Torque			
		D (in.)	Dm (mm)		ST&C		LT&C	
Size					ft-lb	N • m	ft-lb	N • m
13.375	54.50	13.375	339.73	J55	5140	6970	--	--
13.375	61.00	13.375	339.73	J55	5950	8070	--	--
13.375	68.00	13.375	339.73	J55	6750	9160	--	--
13.375	54.50	13.375	339.73	K55	5470	7410	--	--
13.375	61.00	13.375	339.73	K55	6330	8580	--	--
13.375	68.00	13.375	339.73	K55	7180	9740	--	--
13.375	54.50	13.375	339.73	M65	6020	8160	--	--
13.375	61.00	13.375	339.73	M65	6970	9440	--	--
13.375	68.00	13.375	339.73	M65	7910	10720	--	--
13.375	68.00	13.375	339.73	L80	9520	12910	--	--
13.375	72.00	13.375	339.73	L80	10290	13950	--	--
13.375	68.00	13.375	339.73	N80	9630	13060	--	--
13.375	72.00	13.375	339.73	N80	10400	14110	--	--
13.375	68.00	13.375	339.73	C90	10570	14330	--	--
13.375	72.00	13.375	339.73	C90	11420	15480	--	--
13.375	68.00	13.375	339.73	C95	11140	15110	--	--
13.375	72.00	13.375	339.73	C95	12040	16320	--	--
13.375	68.00	13.375	339.73	T95	11140	15110	--	--
13.375	72.00	13.375	339.73	T95	12040	16320	--	--
13.375	68.00	13.375	339.73	P110	12970	17580	--	--
13.375	72.00	13.375	339.73	P110	14010	18990	--	--
13.375	72.00	13.375	339.73	Q125	15760	21360	--	--
16.000	65.00	16.000	406.40	H40	4390	5950	--	--
16.000	75.00	16.000	406.40	J55	7100	9630	--	--
16.000	84.00	16.000	406.40	J55	8170	11080	--	--
16.000	75.00	16.000	406.40	K55	7520	10190	--	--
16.000	84.00	16.000	406.40	K55	8650	11730	--	--
16.000	75.00	16.000	406.40	M65	8320	11280	--	--
16.000	84.00	16.000	406.40	M65	9570	12980	--	--
18.625	87.50	18.625	473.08	H40	5590	7580	--	--
18.625	87.50	18.625	473.08	J55	7540	10220	--	--
18.625	87.50	18.625	473.08	K55	7940	10770	--	--

Table 1—Casing Makeup Torque Guideline, 8-Round Thread Casing (Continued)

(1) Designation	(2) Weight	(3) Outside Diameter		(5) Grade	(6) ft-lb	(7)-(9) Torque		
		(3) D (in.)	(4) Dm (mm)			(7) ST&C		(8) LT&C
						(7) ft-lb	(7) N • m	(8) ft-lb
18.625	87.50	18.625	473.08	M65	8840	11980	—	—
20.000	94.00	20.000	508.00	H40	5810	7870	6730	9120
20.000	94.00	20.000	508.00	J55	7830	10620	9070	12,290
20.000	106.50	20.000	508.00	J55	9130	12370	10,560	14,320
20.000	133.00	20.000	508.00	J55	11920	16160	13,790	18,700
20.000	94.00	20.000	508.00	K55	8230	11160	9550	12,950
20.000	106.50	20.000	508.00	K55	9590	13000	11,130	15,090
20.000	133.00	20.000	508.00	K55	12520	16980	14,530	19,700
20.000	94.00	20.000	508.00	M65	9180	12450	10,630	14,410
20.000	106.50	20.000	508.00	M65	10700	14510	12,380	16,790

Notes:

1. It is recommended that the makeup target be based on position, not torque. See 4.4.1 and 4.4.2.
2. Under normal circumstances, and for sizes 13³/₈ and smaller, variations in the listed torque values of ±25% should be considered acceptable.

the coupling replaced and tightened before pulling the tubing into the derrick.

f. Before stabbing, liberally apply thread compound to the entire internally and externally threaded areas. It is recommended that a thread compound that meets the performance objectives of API Bulletin 5A2 be used; however, in special cases where severe conditions are encountered, it is recommended that high-pressure silicone thread compound as specified in API Bulletin 5A2 be used.

g. Connectors used as tensile and lifting members should have their thread capacity carefully checked to ensure that the connector can safely support the load.

h. Care should be taken when making up pup joints and connectors to ensure that the mating threads are of the same size and type.

5.1.10 For high-pressure or condensate wells, additional precautions should be taken to ensure tight joints as follows:

a. Couplings should be removed, and both the mill-end pipe thread and coupling thread thoroughly cleaned and inspected. To facilitate this operation, tubing may be ordered with couplings handling tight, which is approximately one turn beyond hand tight, or may be ordered with the couplings shipped separately.

b. Thread compound should be applied to both the external and internal threads, and the coupling should be reapplied handling tight. Field-end threads and the mating coupling

threads should have thread compound applied just before stabbing.

5.1.11 When tubing is pulled into the derrick, care should be taken that the tubing is not bent or couplings or protectors bumped.

5.2 STABBING, MAKING UP, AND LOWERING

5.2.1 Do not remove thread protector from field end of tubing until ready to stab.

5.2.2 If necessary, apply thread compound over entire surface of threads just before stabbing. The brush or utensil used in applying thread compound should be kept free of foreign matter, and the compound should never be thinned.

5.2.3 In stabbing, lower tubing carefully to avoid injuring threads. Stab vertically, preferably with the assistance of a man on the stabbing board. If the tubing tilts to one side after stabbing, lift up, clean, and correct any damaged thread with a three-cornered file, then carefully remove any filings and reapply compound over the thread surface. Care should be exercised, especially when running doubles or triples, to prevent bowing and resulting errors in alignment when the tubing is allowed to rest too heavily on the coupling threads. Intermediate supports may be placed in the derrick to limit bowing of the tubing.

Table 3—Tubing Makeup Torque Guidelines—Round Thread Tubing

(1)		(2)	(3)	(4)	(5)	
Size, Outside Diameter		Nominal Weight, Threads and Coupling (lb/ft)	Grade	Thread	Torque	
in.	mm				ft-lb	N • m
1.050	26.7	1.14	H40	NU	140	190
1.050	26.7	1.14	J55	NU	180	240
1.050	26.7	1.14	C75	NU	230	320
1.050	26.7	1.14	L80	NU	240	330
1.050	26.7	1.14	N80	NU	250	340
1.050	26.7	1.14	C90	NU	260	350
1.050	26.7	1.20	H40	EUE	460	630
1.050	26.7	1.20	J55	EUE	600	810
1.050	26.7	1.20	C75	EUE	780	1060
1.050	26.7	1.20	L80	EUE	810	1090
1.050	26.7	1.20	N80	EUE	830	1130
1.050	26.7	1.20	C90	EUE	880	1190
1.315	33.4	1.70	H40	NU	210	280
1.315	33.4	1.70	J55	NU	270	370
1.315	33.4	1.70	C75	NU	360	480
1.315	33.4	1.70	L80	NU	370	500
1.315	33.4	1.70	N80	NU	380	510
1.315	33.4	1.70	C90	NU	400	540
1.315	33.4	1.80	H40	EUE	440	590
1.315	33.4	1.80	J55	EUE	570	770
1.315	33.4	1.80	C75	EUE	740	1010
1.315	33.4	1.80	L80	EUE	760	1040
1.315	33.4	1.80	N80	EUE	790	1070
1.315	33.4	1.80	C90	EUE	830	1130
1.315	33.4	1.72	H40	IJ	310	410
1.315	33.4	1.72	J55	IJ	400	540
1.315	33.4	1.72	C75	IJ	520	700
1.315	33.4	1.72	L80	IJ	530	720
1.315	33.4	1.72	N80	IJ	550	740
1.315	33.4	1.72	C90	IJ	580	780
1.660	42.2	2.30	H40	NU	270	360
1.660	42.2	2.30	J55	NU	350	470
1.660	42.2	2.30	C75	NU	460	620
1.660	42.2	2.30	L80	NU	470	640
1.660	42.2	2.30	N80	NU	490	660
1.660	42.2	2.30	C90	NU	510	700
1.660	42.2	2.30	H40	EUE	530	720
1.660	42.2	2.40	J55	EUE	690	940
1.660	42.2	2.40	C75	EUE	910	1230
1.660	42.2	2.40	L80	EUE	940	1270
1.660	42.2	2.40	N80	EUE	960	1300
1.660	42.2	2.40	C90	EUE	1020	1380

Table 3—Tubing Makeup Torque Guidelines—Round Thread Tubing (Continued)

(1)		(2)	(3)	(4)	(5)	
Size, Outside Diameter		Nominal Weight, Threads and Coupling	Grade	Thread	Torque	
in.	mm	(lb/ft)			ft-lb	N • m
1.660	42.2	2.10	H40	IJ	380	520
1.660	42.2	2.33	H40	IJ	380	520
1.660	42.2	2.10	J55	IJ	500	680
1.660	42.2	2.33	J55	IJ	500	680
1.660	42.2	2.33	C75	IJ	650	890
1.660	42.2	2.33	L80	IJ	680	920
1.660	42.2	2.33	N80	IJ	690	940
1.660	42.2	2.33	C90	IJ	730	1000
1.900	48.3	2.75	H40	NU	320	430
1.900	48.3	2.75	J55	NU	410	560
1.900	48.3	2.75	C75	NU	540	730
1.900	48.3	2.75	L80	NU	560	760
1.900	48.3	2.75	N80	NU	570	780
1.900	48.3	2.75	C90	NU	610	830
1.900	48.3	2.90	H40	EUE	670	910
1.900	48.3	2.90	J55	EUE	880	1190
1.900	48.3	2.90	C75	EUE	1150	1560
1.900	48.3	2.90	L80	EUE	1190	1610
1.900	48.3	2.90	N80	EUE	1220	1650
1.900	48.3	2.90	C90	EUE	1300	1760
1.900	48.3	2.40	H40	IJ	450	600
1.900	48.3	2.76	H40	IJ	450	600
1.900	48.3	2.40	J55	IJ	580	790
1.900	48.3	2.76	J55	IJ	580	790
1.900	48.3	2.76	C75	IJ	760	1030
1.900	48.3	2.76	L80	IJ	790	1070
1.900	48.3	2.76	N80	IJ	810	1100
1.900	48.3	2.76	C90	IJ	860	1160
2.063	52.4	3.25	H40	IJ	570	770
2.063	52.4	3.25	J55	IJ	740	1010
2.063	52.4	3.25	C75	IJ	970	1320
2.063	52.4	3.25	L80	IJ	1010	1370
2.063	52.4	3.25	N80	IJ	1030	1400
2.063	52.4	3.25	C90	IJ	1100	1490
2.375	60.3	4.00	H40	NU	470	630
2.375	60.3	4.60	H40	NU	560	760
2.375	60.3	4.00	J55	NU	610	830
2.375	60.3	4.60	J55	NU	730	990
2.375	60.3	4.00	C75	NU	800	1090
2.375	60.3	4.60	C75	NU	960	1300
2.375	60.3	5.80	C75	NU	1380	1860
2.375	60.3	4.00	L80	NU	830	1130
2.375	60.3	4.60	L80	NU	990	1350
2.375	60.3	5.80	L80	NU	1420	1930

Table 3—Tubing Makeup Torque Guidelines—Round Thread Tubing (Continued)

(1)		(2)	(3)	(4)	(5)	
Size, Outside Diameter		Nominal Weight, Threads and Coupling (lb/ft)	Grade	Thread	Torque	
in.	mm				ft-lb	N • m
2.375	60.3	4.00	N80	NU	850	1160
2.375	60.3	4.60	N80	NU	1020	1380
2.375	60.3	5.80	N80	NU	1460	1980
2.375	60.3	4.00	C90	NU	910	1230
2.375	60.3	4.60	C90	NU	1080	1470
2.375	60.3	5.80	C90	NU	1550	2110
2.375	60.3	4.60	P105	NU	1280	1740
2.375	60.3	5.80	P105	NU	1840	2490
2.375	60.3	4.70	H40	EUE	990	1340
2.375	60.3	4.70	J55	EUE	1290	1750
2.375	60.3	4.70	C75	EUE	1700	2310
2.375	60.3	5.95	C75	EUE	2120	2870
2.375	60.3	4.70	L80	EUE	1760	2390
2.375	60.3	5.95	L80	EUE	2190	2970
2.375	60.3	4.70	N80	EUE	1800	2450
2.375	60.3	5.95	N80	EUE	2240	3040
2.375	60.3	4.70	C90	EUE	1920	2610
2.375	60.3	5.95	C90	EUE	2390	3250
2.375	60.3	4.70	P105	EUE	2270	3080
2.375	60.3	5.95	P105	EUE	2830	3830
2.875	73.0	6.40	H40	NU	900	1080
2.875	73.0	6.40	J55	NU	1050	1420
2.875	73.0	6.40	C75	NU	1380	1880
2.875	73.0	7.80	C75	NU	1850	2500
2.875	73.0	8.60	C75	NU	2090	2830
2.875	73.0	6.40	L80	NU	1430	1940
2.875	73.0	7.80	L80	NU	1910	2590
2.875	73.0	8.60	L80	NU	2160	2930
2.875	73.0	6.40	N80	NU	1470	1990
2.875	73.0	7.80	N80	NU	1960	2650
2.875	73.0	8.60	N80	NU	2210	3000
2.875	73.0	6.40	C90	NU	1570	2130
2.875	73.0	7.80	C90	NU	2090	2840
2.875	73.0	8.60	C90	NU	2370	3210
2.875	73.0	6.40	P105	NU	1850	2510
2.875	73.0	7.80	P105	NU	2470	3350
2.875	73.0	8.60	P105	NU	2790	3790
2.875	73.0	6.50	H40	EUE	1250	1700
2.875	73.0	6.50	J55	EUE	1650	2230
2.875	73.0	6.50	C75	EUE	2170	2940
2.875	73.0	7.90	C75	EUE	2610	3540
2.875	73.0	8.70	C75	EUE	2850	3860
2.875	73.0	6.50	L80	EUE	2250	3050
2.875	73.0	7.90	L80	EUE	2710	3680
2.875	73.0	8.70	L80	EUE	2950	4000
2.875	73.0	6.50	N80	EUE	2300	3120

Table 3—Tubing Makeup Torque Guidelines—Round Thread Tubing (Continued)

(1) Size, Outside Diameter		(2) Nominal Weight, Threads and Coupling	(3) Grade	(4) Thread	(5) Torque	
in.	mm	(lb/ft)			ft-lb	N • m
2.875	73.0	7.90	N80	EUE	2770	3760
2.875	73.0	8.70	N80	EUE	3020	4090
2.875	73.0	6.50	C90	EUE	2460	3340
2.875	73.0	7.90	C90	EUE	2970	4020
2.875	73.0	8.70	C90	EUE	3230	4380
2.875	73.0	6.50	P105	EUE	2910	3940
2.875	73.0	7.90	P105	EUE	3500	4750
2.875	73.0	8.70	P105	EUE	3810	5170
3.500	88.9	7.70	H40	NU	920	1250
3.500	88.9	9.20	H40	NU	1120	1520
3.500	88.9	10.20	H40	NU	1310	1770
3.500	88.9	7.70	J55	NU	1210	1640
3.500	88.9	9.20	J55	NU	1480	2010
3.500	88.9	10.20	J55	NU	1720	2330
3.500	88.9	7.70	C75	NU	1600	2170
3.500	88.9	9.20	C75	NU	1950	2650
3.500	88.9	10.20	C75	NU	2270	3080
3.500	88.9	12.70	C75	NU	3030	4100
3.500	88.9	7.70	L80	NU	1660	2250
3.500	88.9	9.20	L80	NU	2030	2750
3.500	88.9	10.20	L80	NU	2360	3200
3.500	88.9	12.70	L80	NU	3140	4260
3.500	88.9	7.70	N80	NU	1700	2300
3.500	88.9	9.20	N80	NU	2070	2810
3.500	88.9	10.20	N80	NU	2410	3270
3.500	88.9	12.70	N80	NU	3210	4350
3.500	88.9	7.70	C90	NU	1820	2460
3.500	88.9	9.20	C90	NU	2220	3010
3.500	88.9	10.20	C90	NU	2590	3510
3.500	88.9	12.70	C90	NU	3440	4670
3.500	88.9	9.20	P105	NU	2620	3550
3.500	88.9	12.70	P105	NU	4060	5510
3.500	88.9	9.30	H40	EUE	1730	2340
3.500	88.9	9.30	J55	EUE	2280	3090
3.500	88.9	9.30	C75	EUE	3010	4080
3.500	88.9	12.95	C75	EUE	4040	5480
3.500	88.9	9.30	L80	EUE	3030	4240
3.500	88.9	12.95	L80	EUE	4200	5700
3.500	88.9	9.30	N80	EUE	3200	4330
3.500	88.9	12.95	N80	EUE	4290	5820
3.500	88.9	9.30	C90	EUE	3430	4650
3.500	88.9	12.95	C90	EUE	4610	6250
3.500	88.9	9.30	P105	EUE	4050	5490
3.500	88.9	12.95	P105	EUE	5430	7370
4.000	101.6	9.50	H40	NU	930	1260
4.000	101.6	9.50	J55	NU	1220	1660

Table 3—Tubing Makeup Torque Guidelines—Round Thread Tubing (Continued)

(1)		(2)	(3)	(4)	(5)	
Size, Outside Diameter		Nominal Weight, Threads and Coupling (lb/ft)	Grade	Thread	Torque	
in.	mm				ft-lb	N • m
4.000	101.6	9.50	C75	NU	1620	2200
4.000	101.6	9.50	L80	NU	1680	2280
4.000	101.6	9.50	N80	NU	1720	2330
4.000	101.6	9.50	C90	NU	1950	2500
4.000	101.6	11.00	H40	EUE	1940	2630
4.000	101.6	11.00	J55	EUE	2560	3470
4.000	101.6	11.00	C75	EUE	3390	4600
4.000	101.6	11.00	L80	EUE	3530	4780
4.000	101.6	11.00	N80	EUE	3600	4880
4.000	101.6	11.00	C90	EUE	3870	5250
4.500	114.3	12.60	H40	NU	1320	1780
4.500	114.3	12.60	J55	NU	1740	2360
4.500	114.3	12.60	C75	NU	2300	3120
4.500	114.3	12.60	L80	NU	2400	3250
4.500	114.3	12.60	N80	NU	2440	3310
4.500	114.3	12.60	C90	NU	2630	3570
4.500	114.3	12.75	H40	EUE	2160	2930
4.500	114.3	12.75	J55	EUE	2860	3870
4.500	114.3	12.75	C75	EUE	3780	5130
4.500	114.3	12.75	L80	EUE	3940	5340
4.500	114.3	12.75	N80	EUE	4020	5450
4.500	114.3	12.75	C90	EUE	4330	5870

Notes:

1. It is recommended that the makeup target be based on position, not torque. See 5.2.4 and 5.3.1.
2. Under normal circumstances, variations in the listed torque values of $\pm 25\%$ should be considered acceptable.

instruments, or gamma-ray devices that the operator can demonstrate to be within 2 percent accuracy by use of test blocks sized to approximate pipe wall thickness.

7.1.3 Procedure

Used casing and tubing should be classified according to the loss of nominal wall thickness listed in Table 4.

These percentages represent reductions in the body wall from the API specified pipe wall thickness. This loss of wall thickness affects the body areas along both the inside and/or outside surfaces. Pipe with loss of wall thickness in the threaded portion and/or upset section, whether threaded and coupled external upset or integral joint, is not to be classified in accordance with Table 4. Loss of wall thickness in the heavier upset sections could be permitted to a higher percentage without penalty depending on the intended service. Damages and/or wall reductions affecting the threaded ends of pipe require individual consideration depending on the anticipated service by the owner of the pipe.

In addition to the body wall loss classification shown in Table 4, the color code identification system used to denote the conditions is provided in Table 5. The color coding should consist of a paint band of the appropriate color approximately 2 inches wide around the body of the pipe approximately 1 foot from the box end.

Table 4—Classification and Color Coding of Used Casing and Tubing

(1)	(2)	(3)	(4)
Class	Color Band	Loss of Nominal Wall Thickness (percent)	Remaining Wall Thickness (percent minimum)
2	Yellow	0–15	85
3	Blue	16–30	70
4	Green	31–50	50
5	Red	Over 50	less than 50

